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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,407	01/10/2002	Ji-Guang Zhang	170239-00034	5262

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EXAMINER

ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 09/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/047,407

Applicant(s)

ZHANG, JI-GUANG

Examiner

Raymond Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I (claims 1-16) in Paper No. 4 is acknowledged.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 06/21/02 (paper # 2) considered by the examiner.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 28. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "16" and "17" have both been used to designate either "the anode" or "the anode current collector" (it is evident from Figures 1 and 3, that both reference numerals 16 and 17 directly point to the same part). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "12" and "19" have both been used to designate either "the packaging layer" or "the passivation layer" (it is evident from Figure 3 that both reference numerals 12 and 19 directly point to the same part). A proposed drawing correction or corrected drawings are

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required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

6. The abstract of the disclosure is objected to because the abstract provides a statement directed to a packaged battery per se without stating the instant application is also directed and intended to claim the method of sealing the battery itself. Correction is required. See MPEP § 608.01(b).

7. The disclosure is objected to because of the following informalities: the specification at page 4, lines 27-28 discloses “a cathode anode current collector 18”, however, it is not clear whether reference numeral “18” solely refers to “the cathode current collector” per se or “the anode current collector” for itself since reference numeral “17” makes reference to “an anode current collector” too. Appropriate correction and/or clarification is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-5, 7-11 and 13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by

Verma et al US 2002/0071989.

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The instant claims are directed to a method of sealing a battery cell wherein the disclosed inventive concept comprises the specific sealing steps. Other limitations include the particular laminate layers; the heat sealing; the sealing of the battery surface. In addition, the product formed thereby is also claimed.

With reference to claims 1, 4-5, 7, 10-11, 13 and 15:

Verma et al disclose a thin film battery having a protective package that provides a heat resistant, hermetic seal for the thin film battery (ABSTRACT). Verma et al disclose the process to produce the thin film battery having a protective coating (SECTION 0034/CLAIMS 8, 13, 15 and 18-20).

[0034] FIG. 3 shows a flow diagram 44 of the process to produce a thin film battery having a protective coating in accordance with this invention. At 46 the process begins with a thin film battery 20 such as the one shown in FIG. 1. At 48, a layer of dielectric material is deposited upon the thin film battery 20. A second layer of dielectric material is deposited upon the first layer at 50. At 52, the thin film battery 20 having the multilayers of dielectric material deposited thereon is annealed at about 260° for about six minutes. At 54 the entire composite is covered with epoxy. The epoxy is cured under ultraviolet light at 56. The cured epoxy is annealed at about 260° C. for about five minutes at 58.

8. A method of providing a protective coating for a thin film battery cell, comprising the steps of:

- a. positioning a layer of aluminum oxide upon the thin film battery cell;
- b. positioning a layer of silicon dioxide upon the layer of aluminum oxide; and
- c. positioning a layer of epoxy upon the layer of silicon dioxide such that the layer of epoxy covers the entire thin film battery cell.

13. A method of providing a protective coating for a thin film battery cell, comprising the steps of:

- a. positioning layers of a protective coating material upon the thin film battery cell, and
- b. sealing the protective coating such that the resulting thin film battery cell having a protective coating is impervious to heat, moisture and atmospheric elements.

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15. The method of claim 13, wherein the sealing the protective coating step further comprises spreading epoxy over the protective coating, curing the epoxy using an ultraviolet light and annealing cured epoxy.

18. The method of claim 13, further comprises annealing the layers of protective coating material at about 260° C. for about six minutes.

19. The method of claim 18, wherein the sealing the protective coating step further comprises spreading epoxy over the protective coating, curing the epoxy using an ultraviolet light and annealing cured epoxy.

20. A method of producing a thin film battery having a protective coating that is heat-resistant and hermetically sealed, comprising:

- a. depositing at least one thin film layer of a dielectric material upon the thin film battery;
- b. annealing the at least one thin film layer of dielectric material at about 260° C.;
- c. covering the at least one thin film layer of dielectric material with an epoxy;
- d. curing the epoxy using an ultraviolet light;
- e. annealing the epoxy at about 260° C. for about six minutes.

It is also disclosed that the aluminum oxide layer overlies and covers the entire surface of the battery collector (SECTION 0027).

With reference to claims 2, 8 and 14:

It is disclosed that the packaging system comprises multi-layer coating layers wherein the suitable materials include aluminum oxide, tantalum oxide (metal oxide compound or metallic based compound) and an epoxy (resin and/or polymer material) (ABSTRACT/CLAIMS 1 and 2). It is also disclosed that polymerized silicon containing hydrophobic films can be utilized as a sealant (SECTION 0038). It is also disclosed that metallic materials can be used as shield (SECTION 0006).

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With reference to claims 3 and 9:

Verma et al disclose that at least the epoxy is deposited over the entire thin film battery and cured; and finally, the epoxy is annealed (SECTION 0009). *Thus, the sealing process encompasses heat sealing.* It is also disclosed that the layers of aluminum oxide and silicon dioxide are preferably positioned onto the thin film battery by reactively sputtered thin films thereof (SECTION 0027). *It is noted that sputtering does encompass an electro-physical-process in which a target is bombarded with ions, thus, it is further contended that such process inflicts certain degree of pressure.*

Thus, the claims are anticipated.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and, was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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12. Claims 6, 12 and 16 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Verma et al US 2002/0071989.

Verma et al disclose a thin film battery having a protective package that provides a heat resistant, hermetic seal for the thin film battery. A thin film battery wherein layers of dielectric material are positioned over the thin film battery (ABSTRACT/CLAIMS 1-2).

Examiner's note: It is noted that the instant claims are being construed as product-by-process claims and that the product itself does not depend on the process of making it. Accordingly, in a product-by-process claim, the patentability of a product does not depend on its method of production. In that, it is further noted that the product in the instant claims is the same as or obvious over the product of the prior art.

Therefore, the claims are anticipated by Verma et al. However, if the claims are not anticipated the claims are obvious as it has been held similar products claimed in product-by-process limitations are obvious (See MPEP 2113). *In re Brown 173 USPQ 685 and In re Fessman 180 USPQ 324.*

13. Claims 6, 12 and 16 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shiota et al 6187472.

Shiota et al disclose a thin battery including a flat battery body having a battery element group; and a flexible encapsulating bag sealing the battery body with a sealing portion (ABSTRACT).

Examiner's note: It is noted that the instant claims are being construed as product-by-process claims and that the product itself does not depend on the process of making it. Accordingly, in a product-by-process claim, the patentability of a product does not depend on its

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method of production. In that, it is further noted that the product in the instant claims is the same as or obvious over the product of the prior art.

Therefore, the claims are anticipated by Shiota et al. However, if the claims are not anticipated the claims are obvious as it has been held similar products claimed in product-by-process limitations are obvious (**See MPEP 2113**). *In re Brown 173 USPQ 685 and In re Fessman 180 USPQ 324.*

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (703) 306-3326. The examiner can normally be reached on Monday-Thursday (8:30 am - 7:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Raymond Alejandro
Examiner
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A handwritten signature in black ink, appearing to read 'RAM', with a long horizontal line extending to the right.